Representative Capabilities	Molecular Biology 2002-2006	Life Cycles 2007-2011	Evolution and Ecology 2012-2016	Mission Payoff
Cell and molecular biology	Survey genomics, proteomics, metabolic, structural effects on representative cells and small organisms	Survey biopsied tissues inflight of representative species for correlative genomics studies	Functional genomics of life cycles in space.	Identify root cause of space medicine problems; determine biological costs and opportunities of evolution beyond Earth.
Cell to organ Integration	Survey human and mammalian tissue cultures for space and Earth medicine applications	Variable gravity biology, moon, Mars, gravitational countermeasures	Human Countermeasures	Remove biological barriers to long term occupation of space; provide medical and commercial products
Complex organisms and mammalian life cycles	Genomics/proteomics/ metabolism/structure of biopsied tissues postflight on complex species	Functional genomics of full life cycles in space of mammals and complex species	Developmental Biology	Ability to establish multigenerational colonies beyond Earth
Multiple generations	Start long term culture systems for decadal studies on microbial species	Multiple generation studies of plants, insects, fish and other species with short life cycles.	Bioengineered species for successful evolution beyond Earth	Ability to evolve beyond Earth

Survey   **Integrate**   **Evolve**